

Hot Spot 110 Furnace (Zircar Zirconia, Inc.)
Project #09-018 (12/09)



The Hot Spot 110 is a frontloading zirconia sintering furnace that is available in both 110V and 220V 50/60Hz power configurations. This furnace is advertised as containing a unique and proprietary blend of zirconia and alumina insulation blended in a four layer, graduated design that facilitates proper heat flow while keeping exterior temperatures below what would require positioning in a protected location. The Hot Spot 110 contains four Kanthal-grade molybdenum disilicide heating elements that provide an operating temperature range up to 1700°C. The furnace is listed as containing an integrated safety switch that automatically disconnects electrical power to the heating elements whenever the front door is opened. The Hot Spot 110 also has an internal cooling fan that is said to keep the outer furnace exterior shell from causing potential burns. The Hot Spot 110 has a two-year warranty for all components except the heating element.



Manufacturer:

Zircar Zirconia, Inc.
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Suggested Retail Price:

\$8,377.00 Hot Spot 110 Sintering Furnace

Government Price:

Same as suggested retail price.

ADVANTAGES:

- + Easy to set up and maintain
- + Manufacturer instructions are clear and easy to follow
- + Simple to operate
- + Front door mechanism sturdily constructed with automatic latch preventing accidental closure
- + Safety switch disengages electrical power to heating elements when door is opened
- + Zirconia and alumina insulation combined with fan cooling efficiently maintains reasonable exterior surface temperatures
- + Usable chamber size is larger than the comparable ZYrcomat T sintering furnace (Vident)
- + Exterior surfaces maximum temperature below that of potential burn and paper autoignition temperatures
- + Does not require National Fire Protection Association (NFPA) guarded area for operation
- + Meets MIL-STD-1472D standards for momentary contact for exposed metal surfaces
- + Lower energy consumption than that reported with comparable sintering ovens
- + Smaller volume footprint and weight than comparable sintering ovens
- + Available in both 110V and 220V power configurations
- + Less expensive than comparable zirconia sintering furnaces

DISADVANTAGES:

- Chamber size is less than the comparable Sintrammat sintering furnace (Ivoclar-Vivadent)

SUMMARY AND CONCLUSIONS:

The Hot Spot 110 is a compact zirconia sintering furnace that was found to be easy to use and performed flawlessly during a DECS evaluation comparing the physical properties of different zirconia materials. Manufacturer directions were complete and easy to understand. The Hot Spot 110 is reported to have a unique proprietary combination of zirconia and alumina insulation that provided an excellent means to keep the furnace exterior metal surface temperatures relatively cool. Accordingly, the Hot Spot 110 external temperatures were below NFPA 86 values that would require a guarded area for operation and also below existing military temperature standards for momentary contact with unprotected skin. The Hot Spot 110 was found to be relatively economical to operate, as its energy consumption was found to be less than that reported by two other comparable zirconia sintering furnaces. The energy consumption during an eight hour sintering program was found to be approximately 4200 watt-hours and would equate to an approximate cost of \$0.50 (based on national average utility rates). The manufacturer does not currently have GSA contract pricing; however the suggested retail price of the Hot Spot 110 is approximately \$1,600.00 less than the government price of other comparable zirconia sintering ovens. Overall, the **Hot Spot 110** zirconia sintering oven is rated **Outstanding** for use in US Air Force dental facilities.